ARTIFICIAL INTELLIGENCE

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Agenda

- Introduction
- AI Projects and Learnings
- Technology Overview
- AI Use Cases and Examples
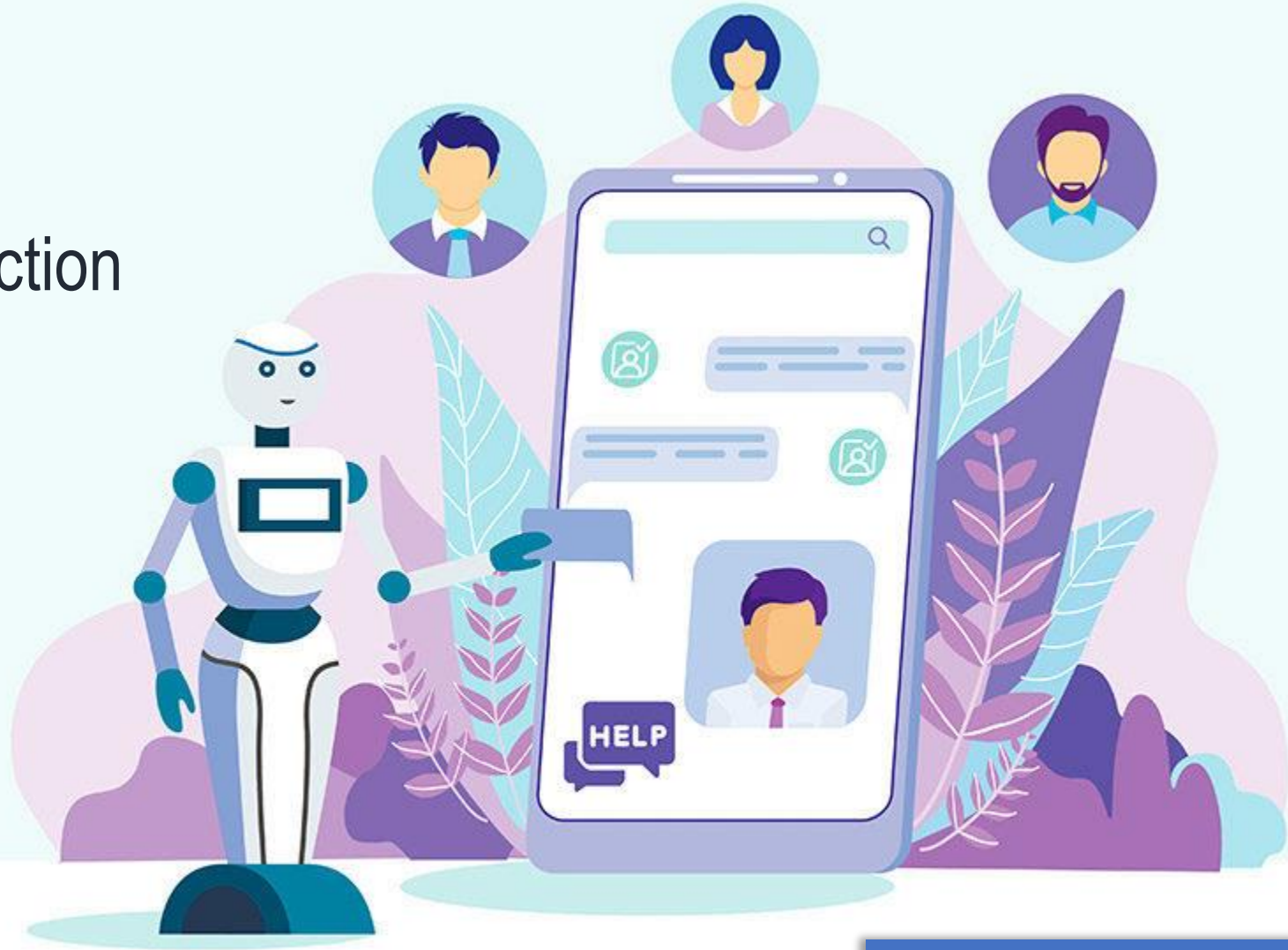- Taking it to the next step...
- Q&A

Introduction

To Artificial Intelligence

Introduction

Artificial Intelligence – Is a Computer Science research branch that aims to develop technologies that simulate human intelligence, such as reasoning, learning, language, inference and creativity.
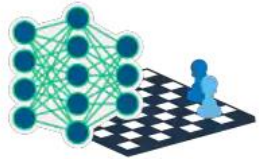
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History of Artificial Intelligence

The term artificial intelligence was created in 1956, but it only became popular in the last years thanks to the increasing volumes of available data, advanced algorithms, and improvements in computing power and storage.
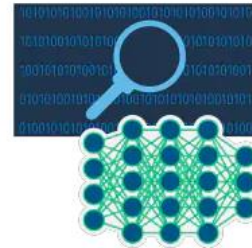
1950 - 1970

Neural networks

Early work with neural networks creates enthusiasm for "thinking machines".

1980 - 2010

Machine learning

Machine learning becomes popular.

Today

Deep learning

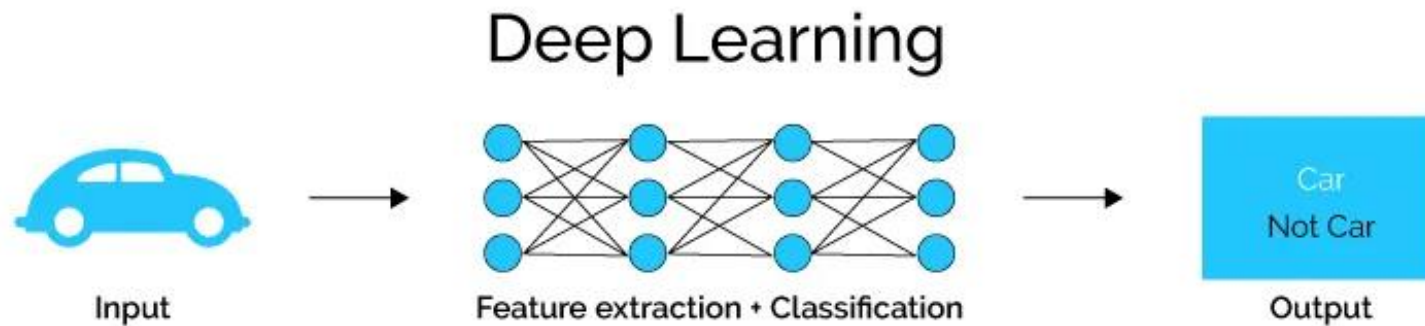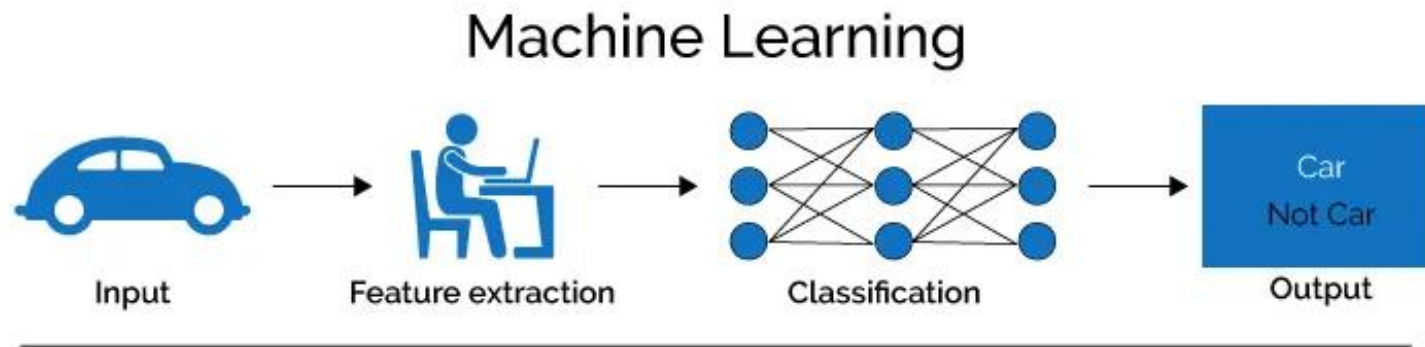Deep learning drives the artificial intelligence boom.

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Technology Overview

An overview of the AI technology

Machine Learning

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Natural Language Processing

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Natural Language Understanding
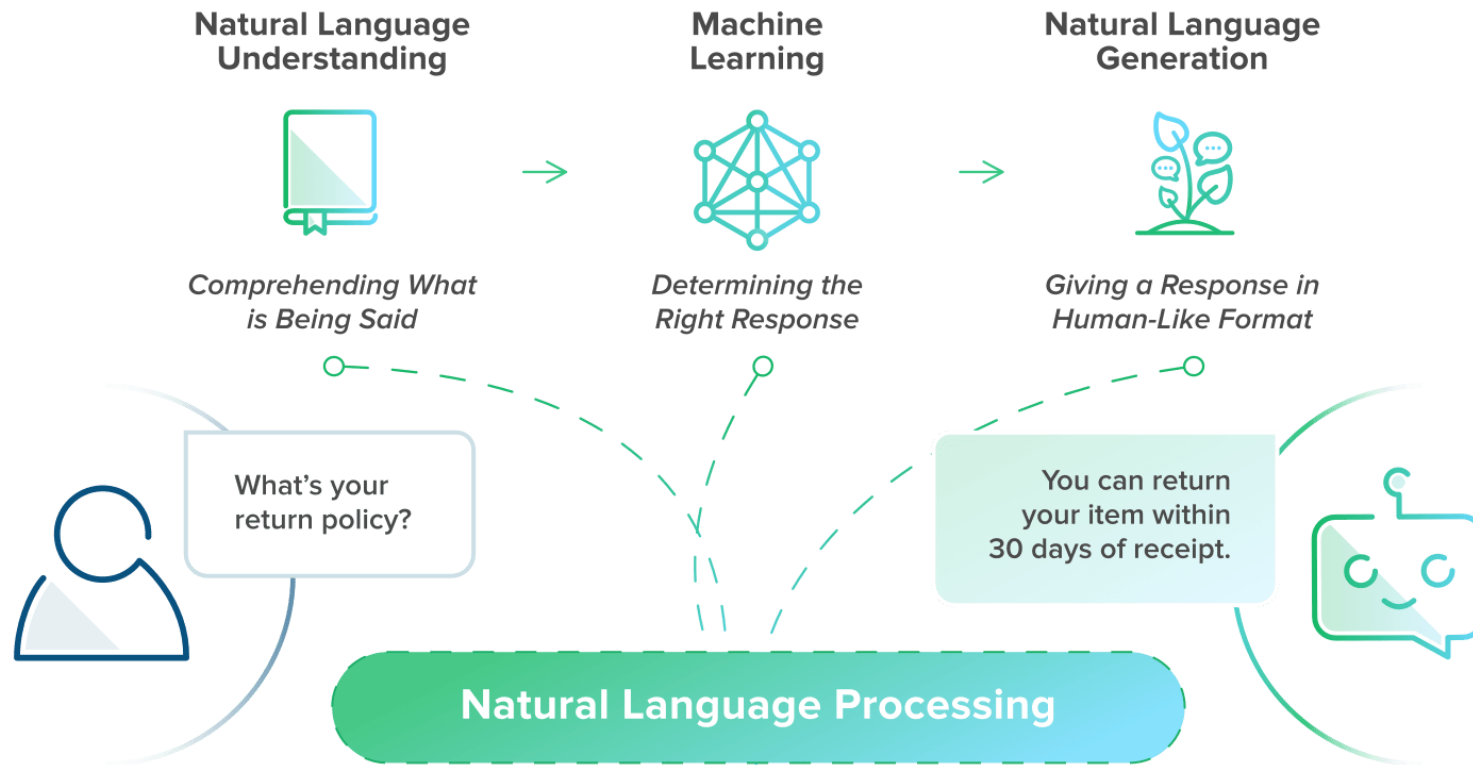
Comprehending What is Being Said

Machine Learning

Determining the Right Response

Natural Language Generation

Giving a Response in Human-Like Format

What's your return policy?

You can return your item within 30 days of receipt.

Natural Language Processing

Know More
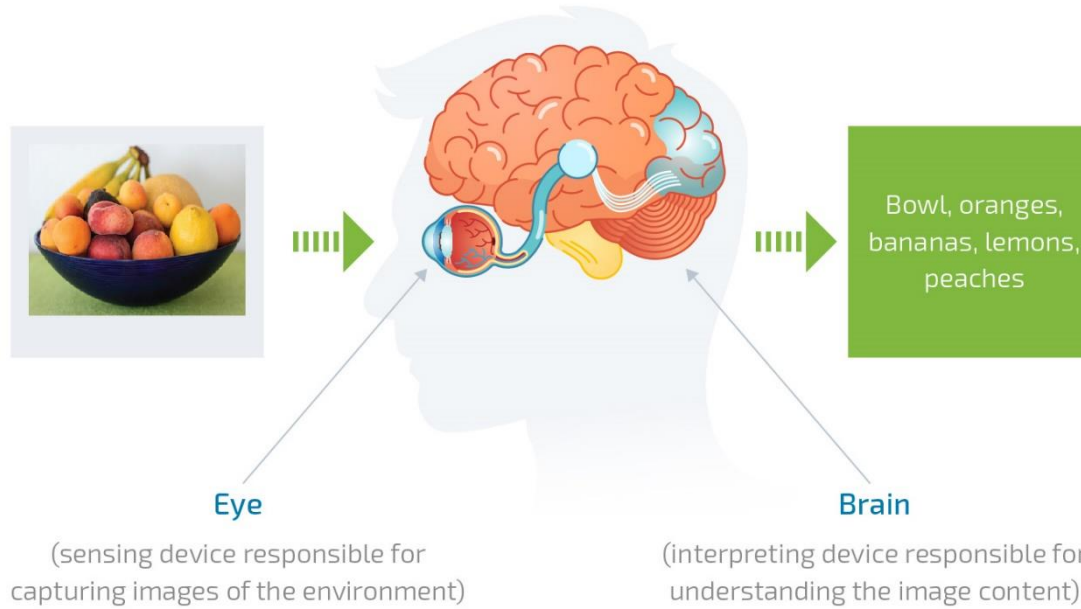
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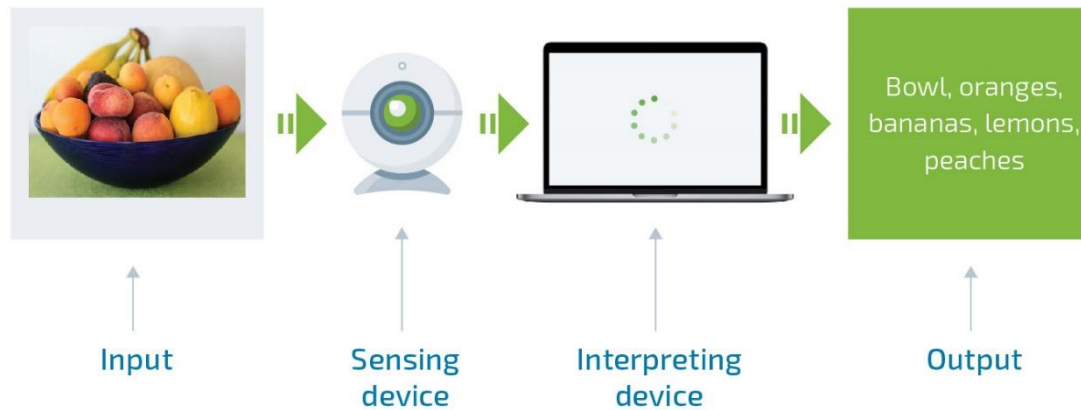
Computer Vision

Predictive Analytics

Predictive Analytics & Machine Learning
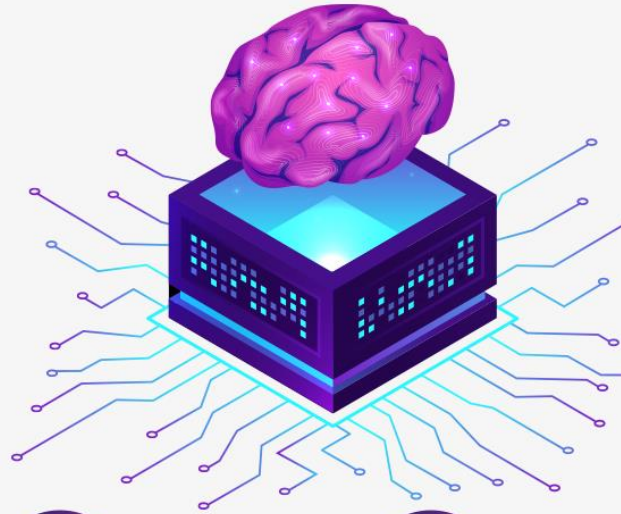
Predictive analysis is a forward-gazing technique of analyzing historical data to forecast accurate future outcomes based on a variety of set parameters.

The increasing demands of effective data analytics have brought machine learning algorithms to intertwine with predictive analytics.

Using machine learning algorithms, businesses can optimize and uncover new statistical patterns which form the backbone of predictive analytics.

Companies are employing machine learning based predictive analytics to gain an edge over the rest of the market.
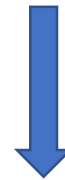
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But what about chatbots?

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AI Projects and Learnings

How to start and manage an AI & ML project...

AI & ML Project LifeCycle

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What AI can do ✕✕ Valuable for your business

Technical diligence

- Can AI system meet desired performance
- How much data is needed
- Engineering timeline

Business diligence

- Lower costs } current business
- Increase revenue
- Launch new product or business } new business
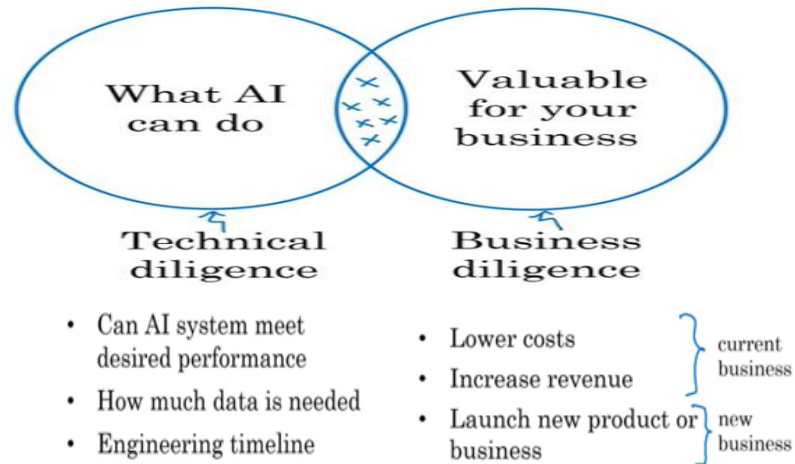
AI Risk Dimensions

By: medium.com/@thebabar

Strategy
› Wrong project selected
› Lacking essential digital foundation
› Missing executive support
› Lack of coordination among various stakeholders

Trust
› Black box model
› Lack of explanation / transparency
› Poor user experience

Identify Risks

Finance
› Expensive resources
› Cost increase due to delays related to data issues, model development
› Over budget: Infrastructure cost higher than expected

Technology
› Team is under-resourced
› Skill are not aligned
› Data issues
› Overfitting
› Weak error analysis
› Lacks ML Ops
› Reliance on vendor

Ethics
› Unrepresentative data
› Bias in data
› Bias in algorithm
› Lack of human oversight

Compliance
› Violation of privacy etc
› Model drift
› Lack of ongoing monitoring

People + Process
› Bad weather results in re-work
› Weather delays progress
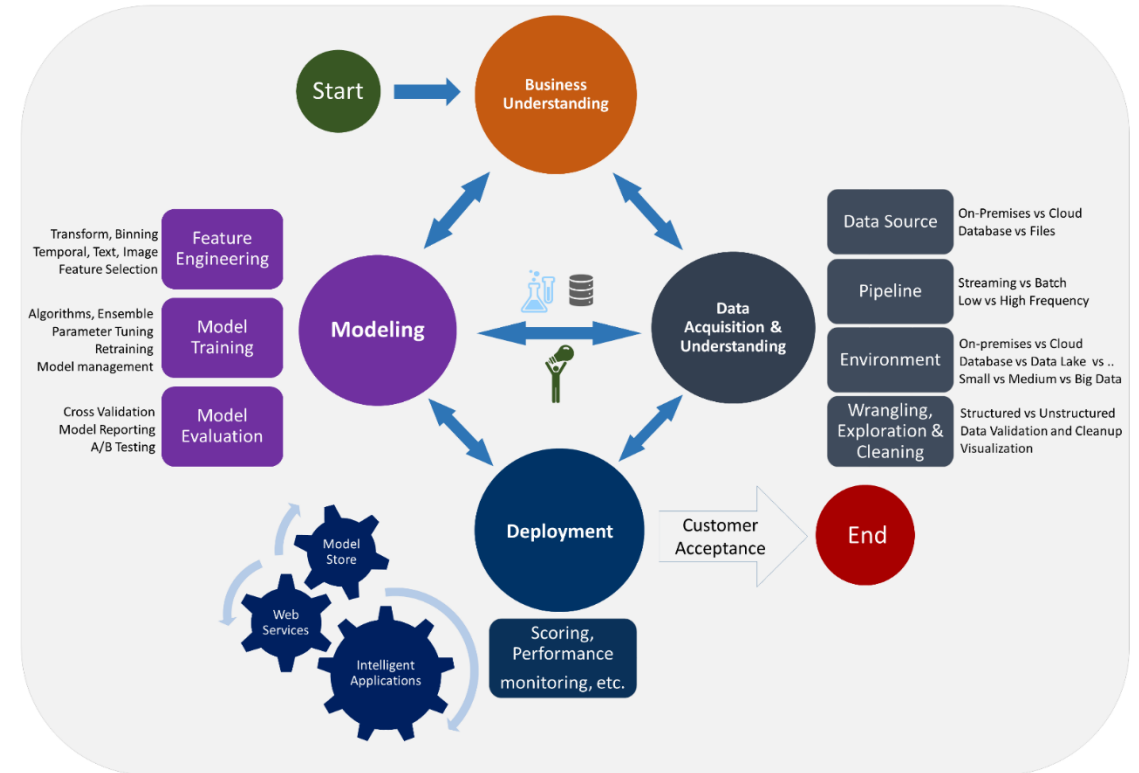› Adverse effects occur
› Environmental approvals not complied with

Scope

Develop

Deploy

Data Science Lifecycle

Start → Business Understanding

Feature Engineering — Transform, Binning Temporal, Text, Image Feature Selection

Model Training — Algorithms, Ensemble Parameter Tuning Retraining Model management

Model Evaluation — Cross Validation Model Reporting A/B Testing

Modeling

Data Acquisition & Understanding

Data Source — On-Premises vs Cloud Database vs Files

Pipeline — Streaming vs Batch Low vs High Frequency

Environment — On-premises vs Cloud Database vs Data Lake vs .. Small vs Medium vs Big Data

Wrangling, Exploration & Cleaning — Structured vs Unstructured Data Validation and Cleanup Visualization

Deployment

Model Store
Web Services
Intelligent Applications

Scoring, Performance monitoring, etc.

Customer Acceptance → End

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AI Use Case Examples

Some Examples of how AI has been applied across industries

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Healthcare

Artificial intelligence applications can result in personalized medications and X-ray readings. Personal assistants can act as coaches, reminding you to take your medication, exercise, or eat healthy foods.
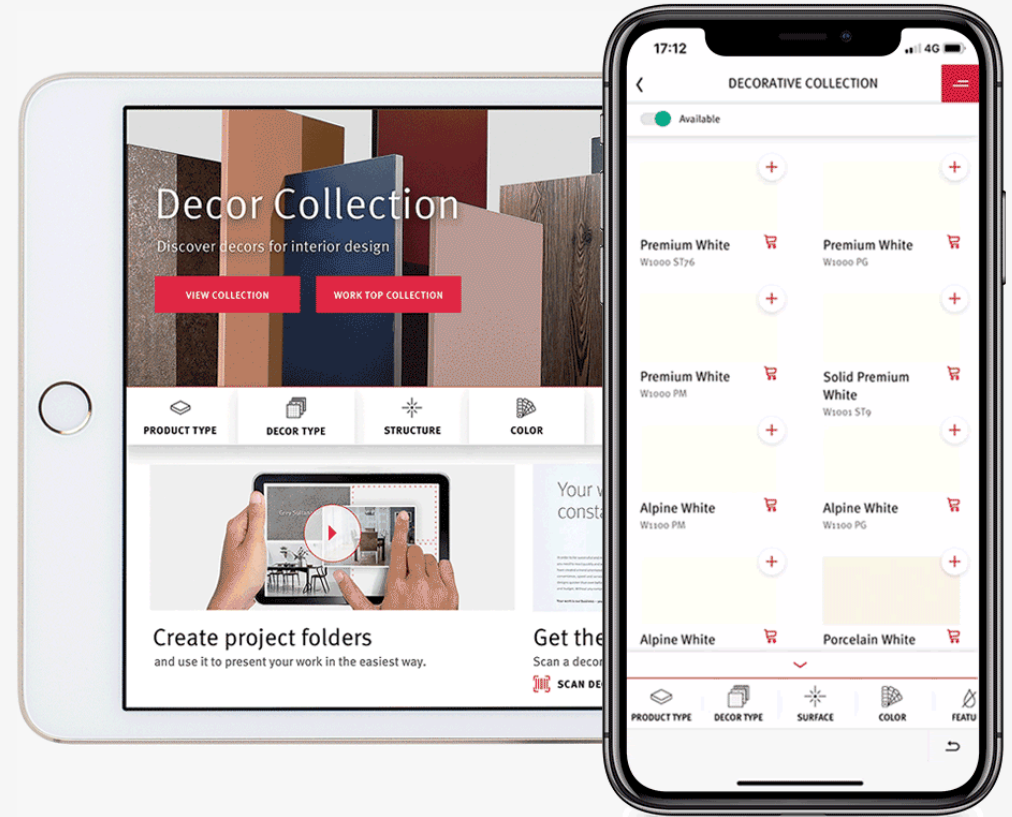
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Retail

AI provides features for online retailers, such as offering personalized recommendations and negotiating payments with consumers. Technologies for inventory management and website layout are also improved with AI.
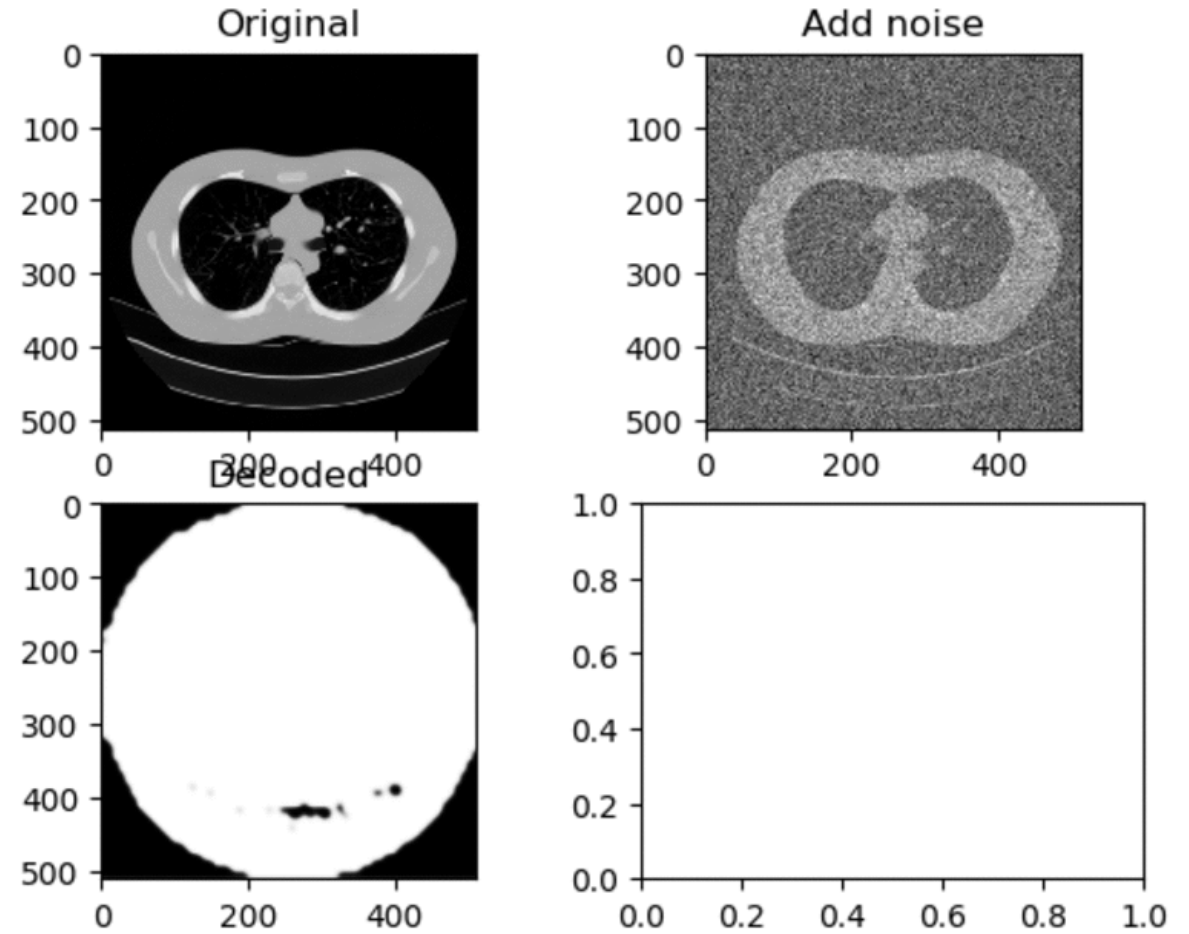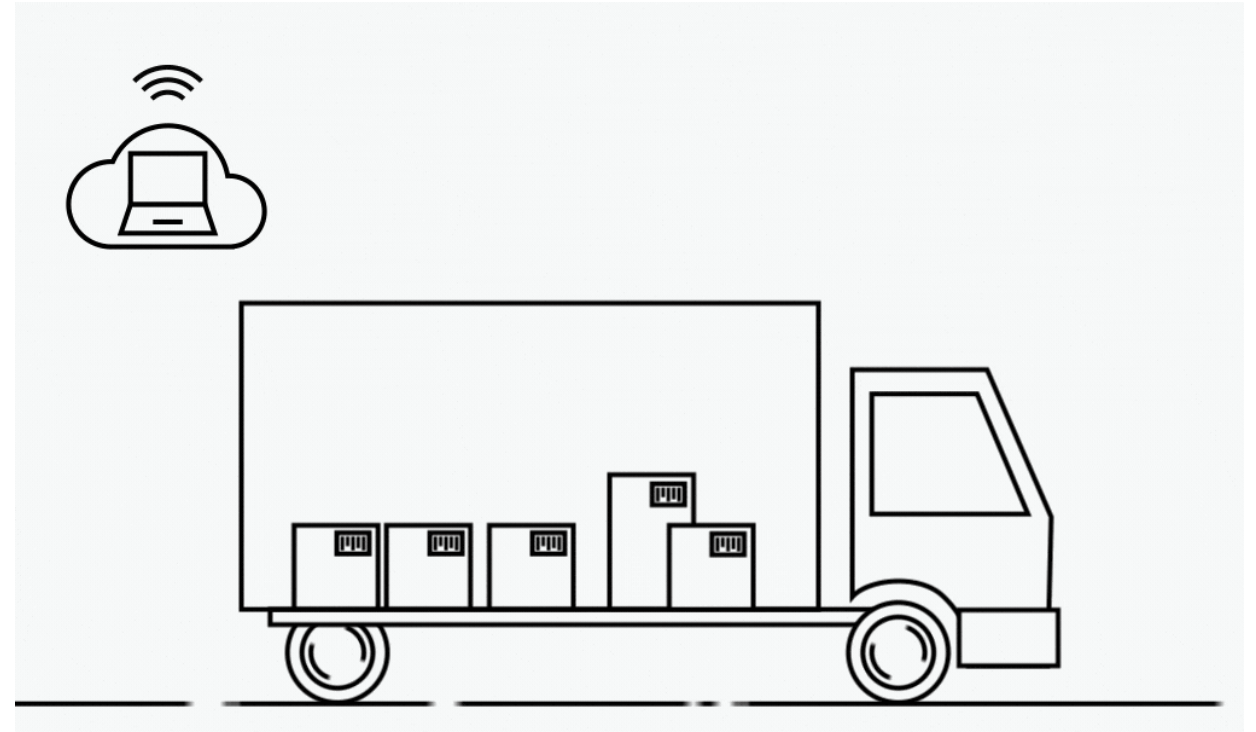
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How has artificial intelligence being used in different industries?

Manufacturing

AI can analyze data Internet of Things factories as they are transmitted from connected equipment to predict loads and demands using recurrent networks, a specific type of network deep learning applied to sequential data.

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Artificial intelligence is not here to replace us.
It is here to expand our capabilities and makes us better at what we do

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Taking it to the next step…

Continue your learning

Here you have a series of links that will help you to continue your learning path regarding Artificial Intelligence

General AI Awareness

318218: AI Awareness for IT Community

Basics of Artificial Intelligence 2020

Level 1 - Beginner

313641: AI & Machine Learning Training Program - Level 1 for IT Business Analyst and PMs

313646: AI & Machine Learning Training Program - Level 1 for IT Application Developer Specialist

313651: AI & Machine Learning Training Program - Level 1 for IT Architect

Level 2 - Intermediate

313732: AI & Machine Learning Training Program - Level 2 for IT Business Analyst and PMs

313735: AI & Machine Learning Training Program - Level 2 for IT Application Developer Specialist

313760: AI & Machine Learning Training Program - Level 2 for IT Architect

Level 3 - Advanced

315299: AI & Machine Learning Training Program - Level 3 for IT Application Developer Specialist

315305: AI & Machine Learning Training Program - Level 3 for IT Architect

Level 4 - Expert

315310: AI & Machine Learning Training Program - Level 4 for IT Application Developer Specialist

315312: AI & Machine Learning Training Program - Level 4 for IT Architect

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Here you have a series of links that will help you to continue your learning path regarding Artificial Intelligence

Experts@Volvo
•Introduction to Artificial Intelligence: what is it and how to get to know it better?

Podcasts
•Ep. 1: The AI & ML CoE Podcast
•Ep. 2: The differences between machine learning development and traditional enterprise

Practitioner Community Videos
•Session I – Conversational Platform – Theory and Practice
•Session II – Predictive Analytics – Theory and Practice
•Session III – Natural Language Processing – Theory and Practice
•Session IV – AI & ML CoE Activities in 2019
•Session V – NLP and Sentiment Analysis

Network sessions
•Session 17/05/2019 – PoC – Virtual Parts Recognition
•Session 28/06/2019 – PoC – Quality Inspection of Parts using Computer Vision
•Session 19/09/2019 – PoC – License Plate recognition using Computer Vision
•Session 13/12/2019 – PoC – Virtual Sensors based on Neural Networks
•Session 20/02/2020 – PoC – Optical Character Recognition

Deep-dive session
•Artificial Intelligence & Machine Learning (AI&ML)

Readings
• Article: Introduction to Artificial Intelligence
• Article: How to start with AI?
• Article: 5 amazing TED Talks for anyone interested in AI
• Article: AI terms you should know
• Article: A guide for the history of AI
• ebook: Understanding Machine Learning
• ebook: AI for Engineering
• ebook: Everything you should know about Chatbots

AI & ML CoE Links
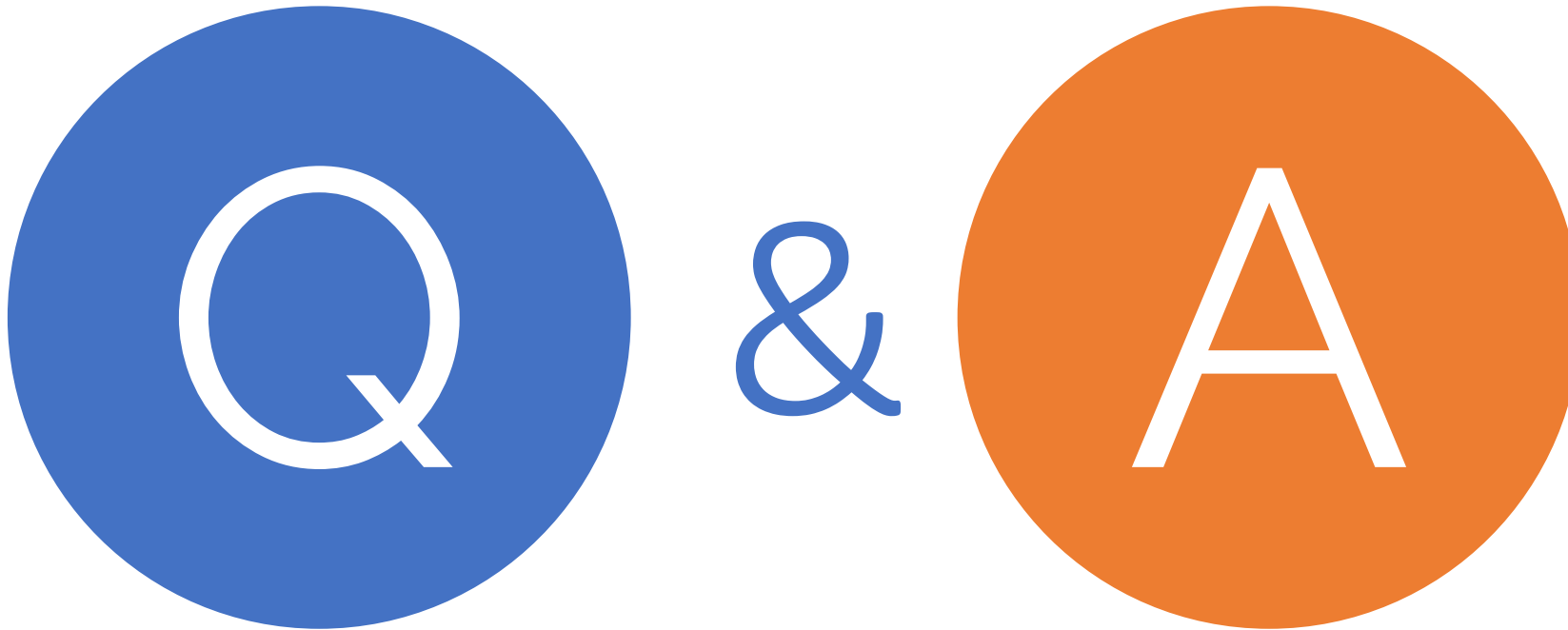• Emerging Technologies and Integration
• AI & ML Center of Excellence (CoE)
• Community Portal
• AI & ML Blog
• Yammer Group
• Conversational Technology Assessment Tool
• Contact the AI & ML Center of Excellence
• AI Use Cased by the AI & ML CoE

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QUESTION & ANSWER TIME

BUSINESS VALUE THROUGH ARTIFICIAL INTELLIGENCE

Appendix

Other things that would be interesting for you to know

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AI automates repetitive learning and discovery from data.
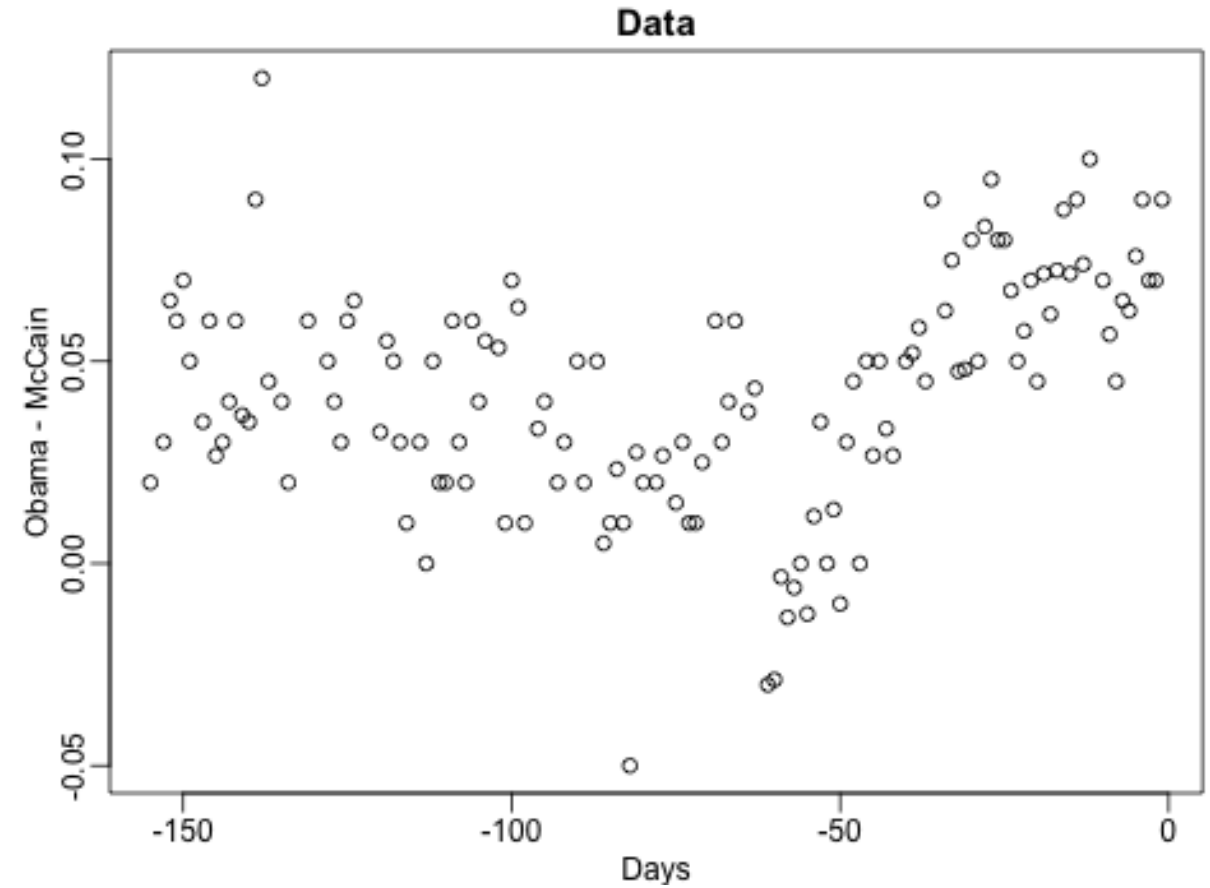
AI analyzes and more data, and in greater depth.

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AI adds intelligence to existing producs and services.

AI can reach an incredible accuracy.

Data

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AI adapts through progressive learning algorithms.

AI gets the most out of the data.

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